

tion and the improvement of the general metabolism. As Harkness says, the slitlamp will prove of value in studying lenticular changes, and thus enable us to institute treatment before there is loss of vision or changes that we can detect by the ophthalmoscope. It will at least tell us whether we are dealing with a purely senile type or a complicated cataract.

Davis,⁴ who claims to have had twenty-three years of experience with lens antigen, and five years in the treatment of incipient cataract, and with it having treated over 250 patients, in 85 per cent of whom the progress was checked. The lens antigen is most effective in the ordinary subcapsular type, while it has little or no effect on the nuclear type. Diabetic cataracts are favorably influenced. Heart disease, high blood pressure, and diabetics are not contraindications to treatment. Every refraction should be made with the pupils dilated, and a careful examination of the lens made at the same time. Should lens changes be present, treatments should be begun at once.

Anaphylactic shock has been of extremely rare occurrence and of light form since subcutaneous rather than intravenous methods of injections have been used. A sensitization test is the first given, and the reactions following the therapeutic injections are carefully noted during the course of the treatment. When the reaction to the sensitization test is very marked, as noted by the swelling and redness at the site of the injection, the therapeutic injections should be given with special care. Symptoms that the patient is reaching his toleration limit are manifested by uneasiness, restlessness, dull headaches, or dizziness.

Davis prepares his own lens antigen from fresh beef eyes; the protein content of the solution is about 2 per cent. Fifty doses constitute a course of treatment given over a period of two months. It will be interesting to watch the results of reports from other investigators.

WILLIAM A. BOYCE,
Los Angeles.

Pediatrics

SUGGESTIVE Developments in Heliotherapy—Much evidence is being accumulated indicating the value of sunshine in the prevention and treatment of certain conditions.

Alfred Hess¹ and L. R. De Buys,² and others, using rats which are very susceptible to rickets for experimental studies, have shown how calcium is deposited in the bones under the influence of appropriate light rays, thus curing rickets; and that the phosphorous of the blood serum is increased even when the diet was deficient.

In these experiments the rays used were those of the carbon arc lamp, the air-cooled quartz lamp, or

the direct rays of the sun. The two first types, because of ready accessibility at all times and in any surroundings, were most satisfactory. The quartz lamp is considered to be about thirty times as effective as direct sunlight. Pigment in the skin of colored people, or fur as in black rats, caused a slowing up of the action of these rays or even a complete inhibition of their action when the same dosage was used as for unpigmented skins and white-furred animals. De Buys'³ findings that rickets is just as prevalent among colored infants in the South as among the whites, whether in the country districts or the city, and with similar diets, seem to support the experimental evidence.

The action of the sun's rays is, of course, inhibited by dust and smoke in the air, hence the greater tendency to sunburn when on mountain trips, or when on the water in an open boat. To get the best results from heliotherapy there must be very little foreign matter floating in the air. Also window glass, because of the lead it contains, cuts out valuable ultra-violet rays. This explains why the sunshine streaming in through window glass, while it is warming, has no curative or bacterial power other than drying.

That diseases other than rickets are benefited by the sun's rays, is shown by the work of Rollier on bone, glandular and peritoneal tuberculosis.

Hess⁴ has irradiated a nursing woman by means of the quartz light and "brought about a marked increase in the antirachitic potency of her milk." He also suggested that this would prevent the nursing infant from having rickets and at the same time conserve the mother's own calcium and phosphorous. These findings suggest the advisability of letting the nursing mother have as much out-of-door life as possible, particularly in the direct rays of the sun, with the hopes of developing the antirachitic properties of the breast milk. Aiding in the conservation of the calcium and phosphorous by exposure to direct sunlight or artificially produced heliotherapy, may decrease the loss of teeth in the pregnant woman and possibly conserve her store of lime. The thought is enticing and it seems well worth future study.

A. J. SCOTT, JR.,
Los Angeles.

Physical Therapeutics

IT is gratifying to read¹ in the February issue of CALIFORNIA AND WESTERN MEDICINE, A. B. Hirsch's observations on the pioneers in physiotherapy. The physician who has failed to utilize the physical therapeutics when indicated has deprived himself of valuable facilities. When the American Medical Association published the report of the committee on present status of physical therapy after the² establishment of the Council of Physical Ther-

4. Davis: The Year Book, 1926, p. 132.

1. Hess, Alfred F., and Unger, L. J.: Interpretation of Seasonal Variation of Rickets, Journal American Medical Association, lxxvii 39, July 2, 1921.

2. De Buys, L. R.: Rickets, Illinois Medical Journal, Vol. 47, No. 6, p. 413, June, 1925. (Note extensive bibliography.)

3. De Buys, L. R.: Trans. American Pediatric Society, Vol. xxxiii, 1921, p. 160. (Discussion.)

4. Hess, Alfred F.; Weinstock, Mildred; Sherman, Elizabeth: Antirachitic Properties Developed in Human Milk by Irradiating the Mother, Journal American Medical Association, 88, 24, January 1, 1927.

1. California and Western Medicine, 2, 1927, p. 242.

2. J. A. M. A., 10, 24, 1925.